

CLAIMS

We claim:

1. (Currently amended) A polymer electrolyte comprising:
a modified chlorine containing polymer having an enhanced chlorine level relative to a chlorine content of an unmodified chlorine containing polymer formed from polymerization of its monomer;

a salt of an alkali metal; and

an aprotic solvent,

wherein said polymer electrolyte is a single phase material ~~comprises a solid homogeneous material formed by dissolving~~ comprising said salt ~~[[.]]~~ and said aprotic solvent integrated with ~~[[and]]~~ said modified polymer material ~~in a common solvent to form a homogeneous solution, and drying said homogeneous solution to remove said common solvent.~~

2. Cancelled.

3. (Previously presented) The polymer electrolyte of claim 1, wherein said chlorine containing polymer is polyvinylchloride (PVC).

4. (Cancelled)

5. (Cancelled)

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6. (Currently amended) The polymer electrolyte of claim 1, wherein said modified chlorine containing polymer comprises C-PVC, said C-PVC having 60-72 wt % chlorine.

7. (Original) The polymer electrolyte of claim 6, wherein said polymer electrolyte comprises 10-40 wt % of said C-PVC.

8. (Original) The polymer electrolyte of claim 1, wherein said alkali metal salt is at least one selected from the group consisting of LiClO_4 , LiBF_4 , LiAsF_6 , LiPF_6 , LiCF_3SO_3 and $\text{LiN}(\text{CF}_3\text{SO}_2)_2$.

9. (Previously presented) The polymer electrolyte of claim 1, wherein said polymer electrolyte comprises from 3-20 wt % of said salt of an alkali metal.

10. (Original) The polymer electrolyte of claim 1, wherein as said aprotic solvent is at least one selected from the group consisting of propylene carbonate, ethylene carbonate, dimethyl carbonate, gamma-butyrolactone, 1,3-dioxolane and dimethoxyethane.

11. (Previously presented) The polymer electrolyte of claim 1, wherein said polymer electrolyte comprises 40-82 wt % of said aprotic solvent.

12. (Currently amended) A rechargeable battery, comprising:

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an anode containing an alkali metal;
a cathode; and
a polymer electrolyte formed from a modified chlorine containing polymer having an enhanced chlorine level relative to a chlorine content of an unmodified chlorine containing polymer formed from polymerization of its monomer, a salt of an alkali metal; and an aprotic solvent, wherein said ~~[[wherein said]]~~ polymer electrolyte is a single phase material ~~comprises a solid homogeneous material formed by dissolving~~ comprising said salt ~~[[,]]~~ and said aprotic solvent integrated with ~~[[and]]~~ said modified polymer material ~~in a common solvent to form a homogeneous solution, and drying said homogeneous solution to remove said common solvent.~~

13. Cancelled

14. (Currently amended)The rechargeable battery of claim 13, wherein said modified ~~[[halogen]]~~ chlorine containing polymer comprises chlorinated polyvinylchloride (C-PVC).

15. (Original)The rechargeable battery of claim 12, wherein in said anode comprises lithium.

16. (Cancelled)

17. (Cancelled)

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18. (Previously presented) The rechargeable battery of claim 12, wherein said anode comprises a lithium-ion intercalation material.

19. (Original) The rechargeable battery of claim 12, wherein said cathode comprises a metal oxide.

20. (Original) The rechargeable battery of claim 12, wherein said cathode comprises a lithium-transition metal oxide.

21. (Original) The rechargeable cell of claim 12, wherein said cathode is at least one selected from the group consisting of MnO_2 , LiMn_2O_4 and vanadium oxides (V_xO_y).

22. (Original) The rechargeable cell of claim 12, wherein said cathode comprises a organic polymer.

23. (Original) The rechargeable cell of claim 12, wherein said cathode is at least one selected from the group consisting of polyviologen, polyacetylene and polypyrrole.

24. (Original) The rechargeable cell of claim 12, wherein said cathode comprises a sulfur containing material.

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25. (Original) The rechargeable cell of claim 12, wherein said cathode is at least one selected from the group consisting of TiS_2 , S, polysulphide and polythiophene.

26-36 (Cancelled)

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